

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS

1-5. Canceled

6. (Previously Presented) An image sensing device comprising:

a first optical system for forming a first object image;

a first area sensor arranged in the approximate image forming plane of the first optical system for receiving the light of the first object image, wherein sensing elements of the first area sensor are arranged contiguously in two dimensions;

a second optical system for forming a second object image;

a second area sensor arranged in the approximate image forming plane of the second optical system for receiving the light of the second object image, wherein sensing elements of the second area sensor are arranged contiguously in two dimensions;

a signal reader for reading a first photoreception signal group from said first area sensor, a second photoreception signal group from said second area sensor and a third photoreception signal group from said second area sensor, wherein the first photoreception signal group constitutes a set of two-dimensional image data from the first object image, the second photoreception signal group constitutes a first set of two-dimensional image data from the second object image, and the third

photoreception signal group constitutes a second set of two-dimensional image data from the second object image;

a position detector for detecting a first image interval by comparing the two-dimensional image data of the second photoreception signal group with the two-dimensional image data of the first photoreception signal group, and for detecting a second image interval by comparing the two-dimensional image data of the third photoreception signal group with the two-dimensional image data of the first photoreception signal group; and

an angle detector for detecting a magnitude of an angle of the second object image relative to an axis of the second area sensor based on the detected image intervals.

7. (Previously Presented) An image sensing device according to claim 6, wherein said angle detector detects the angle of the second object image relative to the axis of the second area sensor by means of data of relative positional relationship of said optical systems and said area sensors.

8. (Previously Presented) An image sensing device according to claim 6, wherein at least part of the second and the third photoreception signal groups include photoreception signals from a same part of the second area sensor.

9. (Previously Presented) A distance measuring device comprising:
a first optical system for forming a first object image;

a first area sensor arranged in the approximate image forming plane of the first optical system for receiving the light of the first object image, wherein sensing elements of the first area sensor are arranged contiguously in two dimensions;

a second optical system for forming a second object image;

a second area sensor arranged in the approximate image forming plane of the second optical system for receiving the light of the second object image, wherein sensing elements of the second area sensor are arranged contiguously in two dimensions;

a signal reader for reading a first photoreception signal group from said first area sensor, a second photoreception signal group from said second area sensor and a third photoreception signal group from said second area sensor, wherein the first photoreception signal group constitutes a set of two-dimensional image data from the first object image, the second photoreception signal group constitutes a first set of two-dimensional image data from the second object image, and the third photoreception signal group constitutes a second set of two-dimensional image data from the second object image;

a position detector for detecting a first image interval by comparing the two-dimensional image data of the second photoreception signal group with the two-dimensional image data of the first photoreception signal group, and for detecting a second image interval by comparing the two-dimensional image data of the third photoreception signal group with the two-dimensional image data of the first photoreception signal group;

an angle detector for detecting a magnitude of an angle of the second object image relative to an axis of the second area sensor based on the detected image intervals; and

a distance detector for calculating an object distance based on a distance between analogous object images formed on the first and the second area sensors.

10. (Currently Amended) A distance measuring device according to claim 9, wherein said distance detector includes a distance corrector ~~correcter~~ for correcting the distance between the first and second object images formed on the first and the second area sensors to a corrected distance and that calculates the object distance using the corrected distance.

11. (Previously Presented) An image sensing device comprising:
an optical system having an optical axis for forming an object image on said optical axis;
first and second sensor arrays, each arranged in the approximate image forming plane of the optical system for receiving light of said object image formed on said optical axis;
a signal reader for reading a first photoreception signal series from said first sensor array and a second photoreception signal series from said second sensor array;
a position detector for detecting an image interval by directly comparing the second photoreception signal series and the first photoreception signal series; and
an angle detector for detecting a magnitude of an angle of the object image relative to an axis of one of said sensor arrays based on the detected image interval.

12. (Previously Presented) An image sensing device according to claim 11, wherein said angle detector detects the angle of the object image relative to the

axis of one of said sensor arrays by means of data of relative positional relationship of said sensor arrays in said image sensing device.

13. (Original) An image sensing device according to claim 11, wherein said second sensor array is parallel to said first sensor array.

14. (Original) An image sensing device according to claim 11, wherein said image sensing device is used in a distance measuring device.

15. (Previously Presented) An image sensing device comprising:
an optical system for forming an object image;
an area sensor arranged in the approximate image forming plane of the optical system for receiving the light of the object image, wherein sensing elements of the area sensor are arranged contiguously in two dimensions;
a signal reader for reading a first photoreception signal group from said area sensor and a second photoreception signal group from said area sensor, wherein the first photoreception signal group constitutes a first set of two-dimensional image data from the object image and the second photoreception signal group constitutes a second set of two-dimensional image data from the object image;
a position detector for detecting an image interval by comparing the two-dimensional image data of the second photoreception signal group with the two-dimensional image data of the first photoreception signal group; and
an angle detector for detecting a magnitude of an angle of the object image relative to an axis of said area sensor based on the detected image interval.

16. (Previously Presented) An image sensing device according to claim 15, wherein said angle detector detects the angle of the object image relative to the axis of said area sensor by means of data of relative positional relationship of the detected position and said area sensor in said image sensing device.

17. (Original) An image sensing device according to claim 15, wherein said image sensing device is used in a distance measuring device.

18. (Previously Presented) An image sensing device according to claim 11, wherein the image interval is determined by calculating a correlation coefficient of a luminance distribution output from the first and second sensor arrays.

19. (Previously Presented) An image sensing device according to claim 11, wherein the position detector detects the image interval by calculating a difference between the second photoreception signal series and the first photoreception signal series.

20. (Previously Presented) An image sensing device according to claim 11, wherein the first sensor array is positioned at one side of the optical axis and the second sensor array is positioned at an opposing side of the optical axis, such that the optical axis is disposed between the first sensor array and the second sensor array.

21. (Previously Presented) An image sensing device according to claim 6, wherein:

the sensing elements of each of the first and second area sensors are disposed two-dimensionally at a pitch p in each of two dimensions;

the second photoreception signal group is read from a first two-dimensional portion of the second area sensor; and

the third photoreception signal group is read from a second two-dimensional portion of the second area sensor.

22. (Previously Presented) An image sensing device according to claim 21, wherein the first and second two-dimensional portions of the second area sensor partially overlap.

23. (Previously Presented) An image sensing device according to claim 6, wherein the position detector detects the first image interval by calculating a difference between the second photoreception signal group and the first photoreception signal group, and detects the second image interval by calculating a difference between the third photoreception signal group and the first photoreception signal group.

24. (Previously Presented) An image sensing device according to claim 9, wherein:

the sensing elements of each of the first and second area sensors are disposed two-dimensionally at a pitch p in each of two dimensions;

the second photoreception signal group is read from a first two-dimensional portion of the second area sensor; and

the third photoreception signal group is read from a second two-dimensional portion of the second area sensor.

25. (Previously Presented) An image sensing device according to claim 24, wherein the first and second two-dimensional portions of the second area sensor partially overlap.

26. (Previously Presented) An image sensing device according to claim 9, wherein the position detector detects the first image interval by calculating a difference between the second photoreception signal group and the first photoreception signal group, and detects the second image interval by calculating a difference between the third photoreception signal group and the first photoreception signal group.

27. (Previously Presented) An image sensing device according to claim 15, wherein:

the sensing elements of the area sensor are disposed two-dimensionally at a pitch p in each of two dimensions;

the first photoreception signal group is read from a first two-dimensional portion of the area sensor; and

the second photoreception signal group is read from a second two-dimensional portion of the area sensor.

28. (Previously Presented) An image sensing device according to claim 27, wherein the first and second two-dimensional portions of the area sensor partially overlap.

29. (Previously Presented) An image sensing device according to claim 15, wherein the position detector detects the image interval by calculating a difference between the second photoreception signal group and the first photoreception signal group.

30. (New) An image sensing device comprising:
at least one optical system for forming at least one object image;
at least one area sensor arranged in the approximate image forming plane of the at least one optical system for receiving light of the at least one object image, wherein sensing elements of the at least one area sensor are arranged contiguously in two dimensions;

a signal reader for reading a first photoreception signal group from a given area sensor and a second photoreception signal group from the given area sensor, wherein the first photoreception signal group constitutes a first set of two-dimensional image data from a given object image and the second photoreception signal group constitutes a second set of two-dimensional image data from the given object image;

a position detector for detecting an image interval by comparing the two-dimensional image data of the second photoreception signal group with the two-dimensional image data of the first photoreception signal group; and

an angle detector for detecting a magnitude of an angle of the object image
relative to an axis of the given area sensor based on the detected image interval.